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IS : 4635 (Part 1) - 1968
(Reaffirmed 2004)
Edition 1.1
(1988-12)

Indian Standard

METHOD FOR DETERMINATION OF COLOUR FASTNESS OF TEXTILE MATERIALS TO VULCANIZING

PART I WITH HOT AIR

(Incorporating Amendment No. 1)

UDC 677.01 : 535.682

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
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IS : 4635 (Part I) - 1968

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METHOD FOR DETERMINATION OF COLOUR FASTNESS OF TEXTILE MATERIALS TO VULCANIZING

PART I WITH HOT AIR

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Indian Standard

METHOD FOR DETERMINATION OF COLOUR FASTNESS OF TEXTILE MATERIALS TO VULCANIZING

PART I WITH HOT AIR

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 27 May 1968, after the draft finalized by the Chemical Methods of Tests Sectional Committee had been approved by the Textile Division Council.

0.2 In proofed textile materials, the coloured cloth comes in contact with rubber compounds. During vulcanizing, due to the action of the rubber compounds, the colour of the dyed materials is likely to change. The colour fastness of such textile materials to vulcanizing is, therefore, important. This standard would be useful for determining the colour fastness of textile materials to vulcanizing with hot air.

0.3 The standard is mainly based on Draft ISO Recommendation No. 953 Tests for colour fastness of textiles (fourth series): Part 6 Colour fastness to vulcanizing with hot air.

0.4 This edition 1.1 incorporates Amendment No. 1 (December 1988). Side bar indicates modification of the text as the result of incorporation of the amendment.

1. SCOPE

1.1 This standard prescribes a method for determining the resistance of colour of textiles of all kinds and in all forms to the action of a typical rubber compound such as may be used in the proofing industry and its decomposition produced during vulcanization in hot air.

2. PRINCIPLE

2.1 A specimen of textile is heated in air in direct contact with an (initially) unvulcanized rubber compound. The change in colour of the specimen is assessed with the standard grey scale.

3. SAMPLING

3.1 Lot — The quantity of fibre, yarn or fabric dyed under essentially similar conditions shall constitute a lot. If the lot contains more than 200 kg of fibre or yarn or more than 500 pieces of fabric, it shall be divided into sub-lots of 200 kg or less of fibre or yarn or, 500 pieces or less of fabric.

3.1.1 Each sub-lot shall be tested separately.

3.2 Sampling for Fibre and Yarn — Unless otherwise agreed to between the buyer and the seller, from the sub-lot 15 increments from different parts shall be taken and mixed thoroughly. The increments, thus mixed, shall constitute the **test sample**. The weight of the increment shall be such that 3 test pieces can be prepared from the test sample.

3.3 Sampling for Fabrics — Unless otherwise agreed to between the buyer and the seller, from the sub-lot 3 pieces of fabric shall be selected at random. The pieces, thus selected, shall constitute the **test sample**.

4. APPARATUS

4.1 An oven maintained at 125° ± 2°C with a fan to ensure uniformity of air temperature.

5. REAGENTS

5.1 Unless specified otherwise, pure chemicals shall be employed in tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the test results.

5.2 A sheet of rubber compound 2.5 ± 1.5 mm thick consisting of:

a) 100 parts pale crepe,
b) 5 parts zinc oxide,
c) 1 part stearic acid,
d) 2 parts sulphur,
e) 1 part mercaptobenzthiazole,
f) 0.2 part zincdiethyldithiocarbamate,
g) 15 parts titanium dioxide, and
h) 75 parts barium sulphate.

NOTE — If it is necessary to transport the rubber compound, it should be covered with thin polyethylene sheeting.

6. PREPARATION OF COMPOSITE SPECIMEN

6.1 Remove any polyethylene film from the sheet of uncured rubber compound (*see* **5.2**) and moisten the compound with petroleum spirit.

6.2 If the textile to be tested is fabric, cut a piece of 10 × 4 cm from the sample and place it on the sheet of uncured rubber compound. To ensure and uniform degree of adhesion, roll the specimen on the rubber compound with a metal roller. Similarly prepare two more composite specimens.

6.3 If the textile to be tested is yarn, take sufficient amount of yarn and knit it into a fabric and cut a 10 × 4 cm test piece. Alternatively stick a number of lengths of yarn flat and side by side on the rubber sheet to obtain the specified area of 10 × 4 cm. Similarly prepare two more composite specimens.

6.4 If the textile is loose fibre, comb and compress enough sample to form a sheet of 10 × 4 cm and stick it to the rubber compound. Similarly prepare two more composite specimens.

7. PROCEDURE

7.1 Hang one composite specimen in the oven for 30 minutes, at 125° ± 2°C. Take out the composite specimen and cool it in air. Separate the test piece from the rubber.

7.2 Evaluate the change in colour of the specimen on the side showing the greater change by the method prescribed in IS : 768-1982*.

NOTE — In cases of doubt in the colour fastness ratings as assessed by an observer, the assessment should be done by at least three observers and the overall average rating should be reported.

7.3 Repeat the test with the remaining test pieces.

8. REPORT

8.1 Report individually the numerical rating for the change in colour for each test piece.

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*Method for evaluating change in colour (*first revision*).

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This Indian Standard has been developed by Technical Committee : TDC 5

Amendments Issued Since Publication

Amend No.	Date of Issue
Amd. No. 1	December 1988

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